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10/757,477	01/15/2004	Young Dae Kim	YHK-0131	4151

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EXAMINER	
BODDIE, WILLIAM	
ART UNIT	PAPER NUMBER
2629	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/757,477	KIM, YOUNG DAE	
	Examiner	Art Unit	
	WILLIAM L. BODDIE	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-7 and 32-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-7 and 32-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In an amendment dated, February 13th, 2009, the Applicant amended claim 6 and added new claims 33-37. Currently claims 1-3, 5-7 and 32-37 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-32 have been fully considered but they are not persuasive.

On pages 6-7 of the Remarks, the Applicant argues that the waveforms are identical except for their starting voltages, and as such they have the same slopes.

The Examiner must respectfully disagree. The slopes that have been viewed to match the predetermined non-zero slopes of the current claim limitations is not the infinite vertical slope from 220/170 to -50 but rather the ramp up voltage from 0V to 220/170V respectively. The slopes necessary to reach 220/170V respectively, from the same starting voltage of 0V, within the same amount of time, will clearly be different. It is these slopes which are seen as reading on the current claim limitations of claims 1-37 and not the infinite vertical slopes.

3. Applicant's arguments with respect to claims 33-37 have been considered but are directed to new limitations which are believed to be answered by the new grounds of rejection which follow. Therefore the arguments are seen as moot.

Claim Objections

4. Claim 1 is again objected to because of the following informalities: the phrase "the second waveform applied during the second time interval that is a portion of the

set-up interval of all or fewer than all of the remaining sub-fields" appears twice in the last paragraph of page 2 of the amended claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 33-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Specifically, claim 33 states that the first and second waveforms applied during the first and second time intervals "prevents a discharge between the scan electrode and the sustain electrode" during the time intervals. While this limitation is in part supported by column 28, lines 22-28 of the Applicant's specification, the limitation is also contradicted by the Applicant's specification which reads "a discharge is generated between the scan electrodes Y and the sustain electrodes Z to thereby form wall charges within the discharge cell." (col. 28, lines 10-14).

When taken in context it appears as though the surface discharge prevention is only achieved in a single portion of the time interval, the second half of the set-up interval. As such the claim has been examined under this assumption.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-2, 5-7 and 32-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanazawa et al. (US 6,667,579) in view of Applicant's Admitted Prior Art (hereinafter, APA).

With respect to claim 1, Kanazawa discloses, a method of driving a plasma display panel, comprising:

applying a first waveform (220V - -50V in fig. 18) to a sustain electrode (X1 electrode in fig. 18) during a first time interval (neighboring cell write period in fig. 18) included in an initial sub-field (SF1 in fig. 4; col. 11, lines 35-38) of one frame (A frame in fig. 4); and

applying a second waveform (170V- -50V in fig. 16) to a sustain electrode during a second time interval (neighboring cell write period in fig. 16) of all or fewer than all of the remaining sub-fields (col. 11, lines 37-39) following the initial sub-field, wherein the first waveform is different from the second waveform (clear from comparisons of fig. 16 and fig. 18), and the second waveform applied to the sustain electrode has a predetermined non-zero slope (note the 170V in fig. 16 slope) different from a non-zero slope of the first electrically floated waveform (different from the 220V in fig. 18 slope);

wherein the non-zero slope of the first waveform is greater than the predetermined non-zero slope of the second waveform (clear from the comparisons of the two waveforms in figs. 16 and 18), wherein the first waveform has a maximum peak voltage greater than a maximum peak voltage of the second waveform (220V > 170V),

and wherein each of the remaining sub-fields other than the initial sub-field has a higher brightness weighting value than the initial sub-field (col. 2, lines 16-21).

Kanazawa does not expressly disclose applying rising and falling pulses to a scan electrode, nor does Kanazawa disclose set-up and set-down intervals.

APA discloses, applying a rising pulse to a scan electrode during a set-up interval of an initialization period, wherein the rising pulse changes to a second voltage after the rising pulse has changed to a first voltage, wherein the second voltage is higher than the first voltage (Y electrode waveform in fig. 5);

applying a falling pulse to a scan electrode during a set-down interval of the initialization period, wherein the falling pulse changes to a fourth voltage after the falling pulse has changed to a third voltage, wherein the third voltage is higher than the fourth voltage (Z electrode in fig. 5).

APA further discloses, applying a first waveform to a sustain electrode during a first time interval that is a portion of the set-up interval (Td in fig. 5); such that the sustain electrode is electrically floated in the first waveform during the first time interval that is a portion of the set-up interval (fig. 5; page 6, line s4 – page 8, line 11 of the current specification), and

applying a second waveform to a sustain electrode during a second time interval that is a portion of the set-up interval (Z electrode pulse in fig. 3), such that the sustain electrode is supplied with substantially a ground voltage in the second waveform during the second time interval that is a portion of the set-up interval of all or fewer than all of the remaining sub-fields (fig. 3, page 4, lines 1-21 of the current specification).

Kanazawa and APA are analogous art because they are both from the same field of endeavor namely, driving waveforms for plasma display devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to supply the scan electrode pulses taught by APA to the panel of Kanazawa.

Furthermore it would have been obvious to one of ordinary skill in the art to apply waveforms to a sustain electrode during a portion of a set-up interval.

The motivation for doing so would have been increased contrast and less chance of brightness misfires (APA; page 6, lines 8-10).

With respect to claim 2, Kanazawa and APA disclose, the method as claimed in claim 1 (see above).

Kanazawa further discloses, wherein said initial sub-field is at least one sub-field including the first sub-field of said frame (col. 11, lines 35-37).

With respect to claim 5, Kanazawa and APA disclose, the method as claimed in claim 1 (see above).

Kanazawa, when combined with APA, discloses the set-up interval is for forming wall charges within on rot more cells by a writing discharge, and the set-down interval is for erasing a portion of said wall charges by an erasure discharge (APA; clear from fig. 5; also see page 6, line 4 – page 8, line 11 of the current specification).

With respect to claim 6, Kanazawa and APA disclose, the method as claimed in claim 5 (see above).

Kanazawa, when combined with APA, discloses wherein wall charges within said one or more cells are formed by the writing discharge during the set-up interval in each

initialization period (APA; fig. 3) of the remaining sub-fields other than the initial sub-field, and wherein the set-down interval in each initialization period of the remaining sub-fields a portion of said wall charges are erased by an erasure discharge (APA; also see page 4, lines 1-21 of the current specification).

With respect to claim 7, Kanazawa and APA disclose, the method as claimed in claim 1 (see above).

Kanazawa, when combined with APA, discloses wherein the sustain electrode is electrically floated during a shorter time than said first time interval in the set-up interval (APA; seems clear from a comparison between fig. 3 and fig. 5, that the sustain electrode is floated for a shorter time in the fig. 3, sub-field.).

With respect to claim 32, Kanazawa and APA disclose, the method as claimed in claim 1 (see above).

Kanazawa further discloses wherein the initial sub-field has a brightness weighting value less than one half a maximum brightness weighting value (clear from fig. 4 and col. 2, lines 18-20) that the sustain period of 2^10 is more than twice as large as the sustain period of 2^0; thereby corresponding to less than one half a maximum brightness).

With respect to claim 33, Kanazawa and APA disclose, the method as claimed in claim 1 (see above).

Kanazawa further discloses, wherein each of the first waveform (220V - -50V in fig. 18), which is applied to the sustain electrode during the first time interval that is a portion of the set-up interval including in the initial sub-field of said one frame, and the

second waveform (170V- -50V in fig. 16), which is applied to the sustain electrode during the second time interval that is a portion of the set-up interval of all or fewer than all of the remaining sub-fields following the initial sub-field, prevents a discharge between the scan electrode and the sustain electrode during respective ones of the first and second time intervals (col. 9, lines 60-67; col. 11, lines 46-50; disclose that an address discharge occurs from t4-t5 not a surface discharge between the scan and sustain electrodes, this is seen as sufficient to disclose the current limitation).

With respect to claim 34, Kanazawa and APA disclose, the method as claimed in claim 33 (see above).

Kanazawa further discloses, wherein the second waveform applied to the sustain electrode has a predetermined positive non-zero slope (ramp up to 170V in fig. 16 slope); different from a positive non-zero slope of the first electrically floated waveform (ramp up to 220V in fig. 18 slope), the second waveform applied during the second time interval that is a portion of the set-up interval of all or fewer than all of the remaining sub-fields (col. 11, lines 37-39),

the positive non-zero slope of the first electrically floated waveform is greater than the predetermined positive non-zero slope of the second waveform (clear from examining figs. 16 and 18; also clear that to reach 220V from 0V will require a larger slope than reaching 170V from 0V in the same amount of time),

the first waveform has a maximum positive peak voltage greater than a maximum positive peak voltage of the second waveform (220V > 170V),

each of the remaining sub-fields other than the initial sub-field has a higher brightness weighting value than the initial sub-field (col. 2, lines 18-22).

With respect to claim 35, Kanazawa and APA disclose, the method as claimed in claim 34 (see above).

Kanazawa, when combined with APA, discloses the set-up interval is for forming wall charges between the scan electrode and an address electrode within one or more cells by a writing discharge, and the set-down interval is for erasing a portion of said wall charges by an erasure discharge (APA; clear from fig. 5; also see page 6, line 4 – page 8, line 11 of the current specification).

With respect to claim 36, Kanazawa and APA disclose, the method as claimed in claim 34 (see above).

Kanazawa further discloses, wherein the first waveform reaches said maximum peak voltage after the first waveform has changed along said corresponding predetermined non-zero slope (fig. 18), and wherein the second waveform reaches said maximum peak voltage after the second waveform has changed along said corresponding predetermined non-zero slope (fig. 16).

With respect to claim 37, Kanazawa and APA disclose, the method as claimed in claim 34 (see above).

Kanazawa, when combined with APA disclose, wherein the first and second waveforms have positive non-zero slopes that are substantially linear (APA: fig. 5; Kanazawa; slope at the top of the ramp ups will be substantially linear).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanazawa et al. (US 6,667,579) in view of Applicant's Admitted Prior Art (hereinafter, APA) and further in view of Matsumoto et al. (US 5,854,540).

With respect to claim 3, Kanazawa and APA disclose, the method as claimed in claim 2 (see above).

Neither Kanazawa nor APA expressly disclose wherein the initial sub-field is the first and second sub-fields.

Matsumoto discloses, wherein said initial sub-field is the first and second sub-fields of said frame (fig. 13 shows the order of the sub-fields, col. 25, lines 10-11 confirms that the second sub-field is indeed the sub-field that succeeds the first sub-field of the frame).

Matsumoto, Kanazawa and APA are analogous art because they are both from the same field of endeavor namely, driving waveforms for plasma display devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to apply the different initialization waveforms of Kanazawa and APA to the subfields as taught by Matsumoto.

The motivation for doing so would have been to decrease the number of priming pulses and enhancing the contrast without appreciable degradation in the quality of the image (Matsumoto; col. 25, lines 45-47, 57-58).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM L. BODDIE whose telephone number is (571)272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/William L Boddie/
Examiner, Art Unit 2629
6/5/09